

Attorney Docket No. FLWP:101US  
U.S. Patent Application No. 10/711,207  
Reply to Office Action of March 30, 1006  
Date: June 30, 2006

**Amendments to the Drawings**

The attached sheets of revised drawings include the original five sheets with renumbering in reference to the new sheet 6 and a new sheet 6 including a new figure, Figure 6.

Attachment: Five (5) Replacement Sheets

New sheet

**Remarks/Arguments**

**Objections to the drawings under 37 CFR 1.83(a)**

The Examiner objected to the drawings under 37 CFR 1.83(a). Corrected drawing sheets including a new sheet have been attached to this document. The new sheet, Sheet 6, including Figure 6, shows the reservoir dome being remote from the main valve body. Amendments to the specification have been added to address Figure 6. Applicants courteously submit that the drawings are acceptable and courteously request that the objection be withdrawn.

**Amendments to the Claims**

**Claims 1 and 24-26**

Claim 1 is presently amended to include “a dampening ring positioned circumferentially about said piston and operatively arranged to dampen movement of said piston” as described in paragraphs [0009], [0013] and [0016] of the specification, and shown in Figure 3 as wedge ring **312**. New Claims 24-26 have been added to provide further limitations to the dampening ring in presently amended Claim 1. New Claims 24 and 25 is described in paragraph [0016] and shown in Figure 3 as wedge ring **312**. New Claim 26 is described in paragraph [0013] and shown in Figure 3 as wedge ring **312**.

**Claim 17**

Claim 17 is presently amended to include “dampening movement of said piston by means of a dampening ring positioned circumferentially about said piston” to accurately claim that the dampening ring “reduces the likelihood of rapid piston movements or oscillations.” See paragraph [0016] and presently amended Paragraph [0026].

**Claims 1-6, 8-12, 14 and 16-22 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Number 6,220,280 (Lai)**

The Examiner rejects Claims 1-6, 8-12, 14 and 16-22 under 35 U.S.C. 102(b) as being anticipated by Lai. Applicants respectfully traverse the rejection.

“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. (Emphasis added). The Examiner states Lai discloses dome reservoir (16), but Lai discloses “a pilot valve 16 for operating the relief valve 14”. Lai Column 2, lines 48-49. Applicants assume the Examiner is referring to reservoir 152 in Lai of Figure 1 for the Examiner’s rejection. Each and every element of the claims is not found either expressly or inherently described in Lai.

Claim 1 recites “a dampening ring positioned circumferentially about said piston and operatively arranged to dampen movement of said piston”. Lai fails to disclose a means for dampening the movement of a piston in a relief valve. Lai teaches “[s]uitable seals 62...mounted in annular grooves about the piston 58 and ride in sealing relationship with the bore 54 as the piston 58 moves within the bore 54.” Lai, Column 3, lines 17-20. Seals 62 do not provide any means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations and provide only a “sealing relationship”. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013], wherein “[t]o prevent metal-to-metal contact and possible scoring between piston 60 and liner 58, wedge ring 312 and wear ring 313 are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal 310, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston 60 and liner 58. A PTFE back-up ring 311 is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts 58 and 60.” Lai discloses suitable seals 62 and applicants disclose seals through ring 311 and ring 313, but applicants further disclose another ring, wedge ring 312, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Lai does not disclose a dampening ring of any kind let alone a dampening wedge ring. Claim 1 is not anticipated by Lai. Claims 2-6, 8-12 and 16, dependent upon Claim 1, enjoy the same distinction. Claims 1-6, 8-12 and 16 are allowable, upon which action is courteously requested.

Claim 17 recites “dampening movement of said piston by means of a dampening ring positioned circumferentially about said piston”. Lai fails to disclose a means for dampening the movement of a piston in a relief valve. Lai teaches “[s]uitable seals 62...mounted in annular grooves about the piston 58 and ride in sealing relationship with the bore 54 as the piston 58 moves within the bore 54.” Lai, Column 3, lines 17-20. Seals 62 do not provide any means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations and provide only a “sealing relationship”. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013], wherein “[t]o prevent metal-to-metal contact and possible scoring between piston 60 and liner 58, wedge ring 312 and wear ring 313 are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal 310, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston 60 and liner 58. A PTFE back-up ring 311 is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts 58 and 60.” Lai discloses suitable seals 62 and applicants disclose seals through ring 311 and ring 313, but applicants further disclose another ring, wedge ring 312, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Lai does not disclose a dampening ring of any kind let alone a dampening wedge ring. Claim 17 is not anticipated by Lai. Claims 18-22, dependent upon Claim 17, enjoy the same distinction. Claims 17-22 are allowable, upon which action is courteously requested.

**Claims 1-6, 8-15 and 17-22 rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Number 6,978,799 (Kugelev et al.)**

The Examiner rejects Claims 1-6, 8-15 and 17-22 under 35 U.S.C. 102(e) as being anticipated by US Patent Number 6,978,799 (Kugelev et al.). Applicants respectfully traverse the rejection.

“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP

§2131. (Emphasis added). Each and every element of the claims is not found either expressly or inherently described in Kugelev.

Claim 1 recites “a dampening ring positioned circumferentially about said piston and operatively arranged to dampen movement of said piston”. Kugelev fails to disclose a dampening ring operatively arranged to dampen the movement of a piston in a relief valve. Kugelev teaches “a delay fluid to delay a return of the valve member from the open position to the closed position... The pressure of the control fluid beneath the piston provides a delay force to the piston... As the pressure of the system fluid returns to an acceptable level, the fluid beneath the piston acts against the piston to delay the return of the piston to the closed position.” Kugelev Column 3, lines 2-17. Kugelev relies on the delay fluid system to reduce “chattering” and fails to disclose a dampening ring to dampen chattering. Seal 29 of Kugelev “provides a sealing engagement between partition 27 and valve member 25” and provides no dampening force against the piston to reduce the likelihood of rapid piston movements or oscillations. Kugelev Column 3, lines 57-59. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013], wherein “[t]o prevent metal-to-metal contact and possible scoring between piston 60 and liner 58, wedge ring 312 and wear ring 313 are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal 310, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston 60 and liner 58. A PTFE back-up ring 311 is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts 58 and 60.” Kugelev discloses a sealing engagement by means of seal 29 and applicants disclose seals through ring 311 and ring 313, but applicants further disclose an additional ring, disclose wedge ring 312, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring. Claim 1 is not anticipated by Kugelev. Claims 2-6, 8-15 and 16, dependent upon Claim 1, enjoy the same distinction. Claims 1-6, 8-15 and 16 are allowable, upon which action is courteously requested.

Similarly, Claim 17 recites “dampening movement of said piston by means of a dampening ring positioned circumferentially about said piston”. Kugelev fails to disclose

dampening the movement of a piston in a relief valve by use of a dampening ring. Kugelev teaches a piston dampening method that controls the fluid flow between an upper and lower portion to reduce the likelihood of rapid piston movements or oscillations. Applicants courteously request the Examiner's attention to wear ring **313** of Figure 3 and paragraph [0013], wherein "[t]o prevent metal-to-metal contact and possible scoring between piston **60** and liner **58**, wedge ring **312** and wear ring **313** are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down" and to paragraph [0015], wherein "[p]iston seal **310**, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston **60** and liner **58**. A PTFE back-up ring **311** is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts **58** and **60**." Kugelev discloses a sealing engagement by means of seal **29** and applicants disclose seals through ring **311** and ring **313**, but applicants further disclose an additional ring, wedge ring **312**, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring. Claim 17 is not be anticipated by Kugelev. Claims 18-22, dependent upon Claim 17, enjoy the same distinction. Claims 17-22 are allowable, upon which action is courteously requested.

**Claims 7 and 23 rejected under 35 U.S.C. 102(b) as being anticipated by Lai or, in the alternative, under 35 U.S.C 103(a) as obvious over Lai in view of US Patent Number 5,174,326 (Steinert et al.)**

The Examiner rejects Claims 7 and 23 under 35 U.S.C. 102(b) as being anticipated by Lai (US 6,220,280) or, in the alternative, under 35 U.S.C 103(a) as obvious over Lai (US 6,220,280) in view of Steinert et al. (US 5,174,326). Applicants courteously traverse the rejection.

"A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference." *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. (Emphasis added). Each and every element of the claims is not found either expressly or inherently described in Lai.

A *prima facie* case of obviousness is not established since the three basic criteria have not been met. First, the references lack suggestion or motivation, either by themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings to include a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations. Second, there must be a reasonable expectation of success, and none of the sealing members or like components of the references offer a reasonable expectation of success or suggestion thereof that they will successfully dampen piston movement to reduce the likelihood of rapid piston oscillations. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations which they do not because they fail to teach or suggest a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations.

Claim 7 is not anticipated by Lai because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1 and Claim 1 has been shown previously to not be anticipated by Lai. Similarly, Claim 7 is not obvious over Lai in view of Steinert because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1 and it wouldn't have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Lai does not disclose any means of reducing rapid piston oscillations as previously shown including a dampening, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 7, dependent upon Claim 1, enjoys each and every distinction previously recited for Claim 1. Therefore, Claim 7 is allowable, upon which action is courteously requested.

Claim 23 is not anticipated by Lai because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17 and Claim 17 has been shown previously to not be anticipated by Lai. Similarly, Claim 23 is not obvious over Lai in view of Steinert because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17 and it wouldn't have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Lai does not disclose any means of reducing rapid piston oscillations as previously shown including a dampening, and Steinert does not even discuss piston movement or reducing

rapid piston oscillations. Claim 23, dependent upon Claim 17, enjoys each and every distinction previously recited for Claim 17. Therefore, Claim 23 is allowable, upon which action is courteously requested.

**Claims 7 and 23 rejected 35 U.S.C. 102(e) as being anticipated by Kugelev et al. (US 6,978,799) or, in the alternative, under 35 U.S.C 103(a) as obvious over Kugelev et al. (US 6,978,799) in view of Steinert et al. (US 5,174,326)**

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“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. (Emphasis added). Each and every element of the claims is not found either expressly or inherently described in Kugelev.

A *prima facie* case of obviousness is not established since the three basic criteria have not been met. First, the references lack suggestion or motivation, either by themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings to include a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations. Second, there must be a reasonable expectation of success, and none of the sealing members or like components of the references offer a reasonable expectation of success or suggestion thereof that they will successfully dampen piston movement to reduce the likelihood of rapid piston oscillations. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations which they do not because they fail to teach or suggest a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations.

Claim 7 is not anticipated by Lai because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1 and Claim 1 has been shown previously to not be anticipated by Kugelev. Similarly, Claim 7 is not obvious over Kugelev in view of Steinert because Claim 7,

dependant upon Claim 1, contains all of the same limitations as Claim 1 and it wouldn't have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 7, dependent upon Claim 1, enjoys each and every distinction previously recited for Claim 1. Therefore, Claim 7 is allowable, upon which action is courteously requested.


Claim 23 is not anticipated by Kugelev because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17 and Claim 17 has been shown previously to not be anticipated by Kugelev. Similarly, Claim 23 is not obvious over Kugelev in view of Steinert because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17 and it wouldn't have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 23, dependent upon Claim 17, enjoys each and every distinction previously recited for Claim 17. Therefore, Claim 23 is allowable, upon which action is courteously requested.

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**Conclusion**

Applicants respectfully submit that all pending claims are now in condition for allowance, which action is courteously requested.

Respectfully submitted,



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